

## Nation-States, Economic Protectionism, National Security, the SolarWinds Cyber-Attack, and the Impact on Supply Chains from the Russian-Ukrainian War



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**ABSTRACT:** This paper aims to discuss the cyber and kinetic effects of supply chain disruptions from the perspective that kinetic disruptions have a far more significant impact than cyber disruptions. The SolarWinds supply chain cyber-attack is reviewed in light of its kinetic effects. The Russian-Ukrainian war is then discussed, where the article observes that the kinetic effects of the conflict have far more real-life consequences than the SolarWinds cyber-attack. The paper's thesis does not discount the effects of a cyber-attack on supply chains. Instead, it perceives that kinetic disruptions of supply chains due to economic sanctions are promptly experienced, whereas cyber disruptions have an almost ethereal quality as far as the public is concerned. The result is that the current economic sanctions against the Russian Federation, its allies, and its people are affecting the sanctionees and the sanctionors. The article concludes that the supply chain disruptions caused by Western sanctions have a larger kinetic effect than the SolarWinds cyber-attack.

**KEYWORDS:** Nation-States, Economic Protectionism, National Security, Russian-Ukrainian War, SolarWinds Cyber-Attack Supply Chains.

### Abbreviations:

The following abbreviations are used in this manuscript:

Abbreviation	Description
APT	Advanced Persisten Threats
BNedtzA	Bundesnetzagenbtur
EU	European Union
ICT	Information and Communications Technology
NAFTA	North American Free Trade Agreement
NSA	National Security Agency
PIB	Prominvestbank
TTP	Techniques, Tactics, and Procedures
USMCA	United States-Mexico-Canada Agreement

### INTRODUCTION

This article is the result of combining several seemingly independent essays into a cohesive whole. The overriding theme of the paper is that nation-state actors the attack supply chains are far more dangerous to society than supply chain cyber-attackers. It is not that cyber-actors do not disturb the flow of goods and services in a supply chain. They do. However, unless the effect causes kinetic harm, all that has been accomplished in a supply chain cyber-attack is for the software to become infected with malware. For the implanted malware to dramatically affect a supply chain, it must kinetically disrupt the flow of goods and services.

It is not at all being suggested that supply chain malware is impotent. On the contrary, supply chain malware can potentially damage a supply chain, but the damage must have a kinetic consequence. The SolarWinds attack was a case in point. The Orion product was infected, which caused a tremendous stir in the cybersecurity community. Fortunately, the infection was discovered promptly so that the kinetic effects were minimized. This is not to say that there were no kinetic effects. There may have been kinetic effects associated with the SolarWinds cyber-attack, but there is seemingly a dearth of reporting on them.

In contrast, when examining the supply chain effects of the Russian-Ukraine War, the kinetic effects of the supply chain disruption are immediately apparent to the public. The American and EU sanctions are having a substantial effect on European

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businesses. Simply stated, Europe is running out of energy. The scarcity of reliable energy will become far more striking as the Winter of 2022 inevitably approaches in a few short months. The questions facing Europeans are whether they will be able to stay warm this Winter and whether their jobs will disappear as the business that they work for have insufficient energy to produce their products. Without a reliable source of energy, the international economic system and the supply chains that support it, will probably fall like a house of cards.

Thus, this paper aims to demonstrate that kinetic supply chain disruptions are far more noteworthy and extensive than cyber-attacks on supply chain software. The Russian-Ukraine War is employed as a case in point. As the war drags on, as most conflicts do, the supply chain disruption will be experienced by more and more governments, businesses, and people. In the global marketplace where nation-states find themselves, peaceful trade that all parties can live with is the preferred economic course of action. Whether peace will be restored in Europe is beyond the scope of this essay. However, one thing is for sure. Trade is constrained without peace, and supply chain disruptions, whether cyber or kinetic, are inevitable.

### Nation-States

In this section, the purpose of a nation-state is stated, where the beginnings of nation-states begin with the Treaty of Westphalia in 1648. The characteristics of nation-state actors are described, and the social contract of a nation-state with its people is discussed. Finally, the unique risks associated with nation-state actors are explained.

### Purpose of a Nation-State

At the end of the Thirty Years' War, the Treaty of Westphalia in 1648 was signed by the governments of Europe, marking the birth of nation-states.<sup>1</sup> The Peace of Westphalia overturned the medieval system of centralized religious authority, replacing it with a decentralized system of sovereign, territorial states.<sup>2</sup> According to Feinstein, a nation-state is a "territorially bounded sovereign polity—i.e., a state—that is ruled in the name of a community of citizens who identify themselves as a nation."<sup>3</sup> The legitimacy of a nation-state to control territory and the population inhabiting the territory originates from the right of a core national group of people within the state, which may include all or only some of its citizens, to self-determination<sup>4</sup> or the right of a group of people to determine their status and political future.<sup>5</sup> Members of the core national group perceive the nation-state as belonging to them and consider the territory ruled by the nation-state as their homeland.<sup>6</sup> Thus, the core national group demands that other groups inside and outside the nation-state recognize and respect their control over the nation-state.<sup>7</sup> For example, in the United States, the core national group are American citizens, who demand and require that non-citizens and other nations respect the sovereignty of the United States, their homeland. Any effort by a citizen, non-citizen, or foreign citizen to thwart the right of citizens to control a nation-state is perceived by the core national group as an attack on the sovereignty of the nation-state.

As a political model, a nation-state combines the following two principles:

- The principle of state sovereignty as articulated in the Treaty of Westphalia in 1648; and
- The principle of national sovereignty recognizes the right of national communities to govern themselves.<sup>8</sup>

National sovereignty is predicated on the moral and philosophical principle of popular sovereignty, where nation-states belong to its peoples.<sup>9</sup> The principle of popular sovereignty requires the consent of people residing in the nation-state.<sup>10</sup> This principle does not demand that nation-states be republics or democracies. Many dictators have portrayed themselves as ruling a nation-state in the name of a sovereign nation.<sup>11</sup>

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<sup>1</sup> Michael Vaughn, *After Westphalia, Whither the Nation State, Its People and Its Governmental Institutions?*, THE INTERNATIONAL STUDIES ASSOCIATION ASIA-PACIFIC REGIONAL CONFERENCE (Sep. 29, 2011), available at <https://espace.library.uq.edu.au/view/UQ:266787/AfterWestphalia.pdf>.

<sup>2</sup> *Id.*

<sup>3</sup> Yuval Feinstein, *Nation-State*, ENCYCLOPEDIA BRITANNICA (Jun. 14, 2022) available at <https://www.britannica.com/topic/nation-state>.

<sup>4</sup> *Id.*

<sup>5</sup> *Self-Determination*, MERRIAM-WEBSTER DICTIONARY (n.d.), available at <https://www.merriam-webster.com/dictionary/self-determination>.

<sup>6</sup> Yuval Feinstein, *supra*, note 3.

<sup>7</sup> *Id.*

<sup>8</sup> *Id.*

<sup>9</sup> *Id.*

<sup>10</sup> *Id.*

<sup>11</sup> *Id.*

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### Characteristics of Nation-State Actors

According to Scott, nation-state actors are the most significant risk in supply chain cybersecurity compared to others, such as cybercriminals, hackers, or insiders.<sup>12</sup> This is a bold statement that is begging for an explanation. First, state-sponsored entities have more financial resources than cybercriminals, hacktivists, insiders, techno vandals/hackers, or companies engaged in industrial espionage. For example, President Biden proposed to spend \$10.9 billion in 2023 on cybersecurity.<sup>13</sup> In 2021, China expended approximately \$2.2 billion on cyber security.<sup>14</sup> The United Kingdom spent £1.5 billion in 2021 on cybersecurity.<sup>15</sup> In 2021, because the average exchange rate was 1.3757, the United Kingdom spent \$2.06 billion on cybersecurity.<sup>16</sup> In 2021, the Russian government spent P96.68 billion or about \$1.34 billion on cyber security,<sup>17</sup> where the 2021 average rubles to dollars exchange rate was 0.0136.<sup>18</sup> In contrast, cybercriminals, hacktivists, insiders, techno vandals/hackers, and individuals engaged in industrial espionage spend little money on cyber activities. Thus, his statements were entirely accurate when Scott suggested that nation-states pose a far greater cyber threat than other categories of threat actors based on dollars expended.

When cybercriminals, hacktivists, insiders, vandals/hackers, or individuals involved in industrial espionage, the number of people involved in a cyber-attack is relatively small. Although it is difficult to determine how many federal employees work in cyber security, it is known that the National Security Agency (NSA) has approximately 40,000 employees that specialize in digital communications and cyber security.<sup>19</sup> According to Younger, the United Kingdom Secret Intelligence Service (SIS), also known as MI6, will have approximately 3,500 officers working for it as of 2020.<sup>20</sup> A substantial number of MI6 officers are likely well-versed in cybersecurity. However, the number of Chinese and Russian agents working in cyber security is not well-known. Even so, this author estimates that the figures are likely in the thousands. Thus, because of the number of government agents working in cybersecurity, Scott is probably correct in asserting that nation-states present a far greater cyber threat than cybercriminals, hacktivists, insiders, techno vandals/hackers, and individuals engaged in industrial espionage.

Predicated on the two arguments above, given that nation-states spend a massive amount of money and command thousands, if not tens of thousands of individuals, it is evident that nation-states possess the resources to attack a multitude of targets in a plethora of ways. In contrast, cybercriminals, hacktivists, insiders, techno vandals/hackers, and individuals engaged in industrial espionage have scarce resources and are few. Therefore, there is seemingly no comparison between the cyber threats that can be launched by state-sponsored entities and isolated or lone wolf cyber threat actors.

### Social Contract of a Nation with Its People

According to Lexico, a subsidiary of the Oxford English Dictionary, a social contract is an “implicit agreement among the members of a society to cooperate for social benefits, for example, by sacrificing some individual freedom for state protection.”<sup>21</sup> Social

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<sup>12</sup> *Id.*

<sup>13</sup> Eduard Kovacs, *White House Proposes \$10.9 Billion Budget for Cybersecurity*, SECURITY WEEK (Mar. 29, 2022), available at [https://www.securityweek.com/white-house-proposes-109-billion-budget-cybersecurity#:~:text=The%20president's%20budget%20request%20includes,Infrastructure%20Security%20Agency%20\(CIS\).](https://www.securityweek.com/white-house-proposes-109-billion-budget-cybersecurity#:~:text=The%20president's%20budget%20request%20includes,Infrastructure%20Security%20Agency%20(CIS).)

<sup>14</sup> Dina Temple-Raston, *Report: China's Network Security Spending Set to Double in First Half of 2021*, THE RECORD (Oct. 12, 2021), available at <https://therecord.media/report-chinas-network-security-spending-set-to-double-in-first-half-of-2021/#:~:text=China%20is%20set%20to%20increase,the%20marketing%20intelligence%20firm%2C%20IDC..>

<sup>15</sup> Ritika Sager, *Top Cybersecurity Budgets Around the World*, OPINIONS (Jun. 10, 2021), available at <https://analyticsindiamag.com/top-cybersecurity-budgets-around-the-world/>.

<sup>16</sup> *British Pound to US Dollar Spot Exchange Rates for 2021*, EXCHANGERATES.ORG.UK (n.d.), available at <https://www.exchangerates.org.uk/GBP-USD-spot-exchange-rates-history-2021.html#:~:text=Welcome%20to%20the%202021%20GBP,rate%20in%202021%3A%201.3757%20USD.>

<sup>17</sup> *Spending on information security by end users in Russia from 2020 to 2025*, STATISTA (n.d.), available at <https://www.statista.com/statistics/1306644/consumer-spend-on-information-security/>.

<sup>18</sup> *Russian Rouble to US Dollar Spot Exchange Rates for 2021*, EXCHANGERATES.ORG.UK (n.d.), available at <https://www.exchangerates.org.uk/RUB-USD-spot-exchange-rates-history-2021.html>.

<sup>19</sup> CyberDegrees.org Staff, *Government Cybersecurity Careers*, CYBERDEGREES.ORG (May 9, 2022), available at <https://www.cyberdegrees.org/resources/government-cyber-security-careers/#:~:text=It%20employs%20approximately%2040%2C000%20workers,in%20digital%20communications%20and%20cybersecurity.>

<sup>20</sup> Alex Younger, *MI6 to Hire 1,000 New Staff by 2020*, WIRED (Sep. 22, 2016), available at <https://www.wired.co.uk/article/mi6-new-staff>.

<sup>21</sup> Lexico Staff, *Social Contract*, LEXICO.COM (2022), available at [https://www.lexico.com/en/definition/social\\_contract](https://www.lexico.com/en/definition/social_contract).

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contract theory became popular in the 16th, 17th, and 18th centuries among philosophers such as Thomas Hobbes,<sup>22</sup> John Locke,<sup>23</sup> and Jean-Jacques Rousseau to explain the government's origin and the subjects' obligations.

For Hobbes, the sovereign's authority is absolute, while citizens are free to act according to their own free will when the sovereign is silent.<sup>24</sup> The social contract allows individuals to enter civil society, where the purpose of the sovereign is to protect its subjects.<sup>25</sup> For Locke, the peoples' obligations of a nation-state to obey its laws under the social contract were conditioned on the protection of the natural rights of the citizenry, including the right of private property.<sup>26</sup> Sovereigns that violated the natural rights of the people could be legitimately overthrown.<sup>27</sup> Locke stated a fundamental principle of political liberalism that a nation-state had no power without the consent of the people, even though the people were obliged to obey the laws of a majority of the legislature that the people elected by majority vote.<sup>28</sup> The legislature's powers were not absolute because the laws of nature are a permanent standard to protect against arbitrary authority.<sup>29</sup> For Rousseau, a state is a moral person whose existence is the union of its citizenry. Its laws are a manifestation of the general will. The purpose of the nation-state is the liberty and equality of its citizens.<sup>30</sup> If a nation-state usurps the power of the people, Rousseau believed that the social contract is broken, the citizens are no longer compelled to obey its laws and have a moral obligation to rebel.<sup>31</sup>

### Unique Risks Associated with Nation-State Actors

Although it is evident that nation-state actors share many of the same risks as other threat actors, there are unique risks associated with nation-state actors. First, according to Scott, a nation-state actor may potentially "disrupt and threaten major portions of the American economy, military defense capabilities, and critical infrastructures."<sup>32</sup> Second, a nation-state actor can implant vulnerabilities in the supply chain of information and communications technology (ICT).<sup>33</sup> Without a significant effort, the exploits may be challenging to discover. Third, nation-state actors have been known to employ advanced persistent threats (APTs) to advance political and strategic goals, a threat that is used in extended cyber-attacks that can be hidden for months or even years.<sup>34</sup> APTs form a unique risk when employed by nation-state actors because they are not necessarily profit-seeking, thereby allowing nation-state actors to wait for the opportune moment to strike. Fourth, although not a frequently used exploit, governments have been known to purchase zero-day exploits from the private market to conduct surveillance activities against a target.<sup>35</sup> Finally, nation-state actors may produce an expensive attack mechanism, such as Stuxnet, an APT allegedly created by the United States and Israel.<sup>36</sup> However, like many threat actors, nation-state actors favor low-barrier attacks because they are easy and cheap to execute and much more difficult to find.<sup>37</sup>

### Economic Protectionism and National Security

One of the aims of this essay is to address whether American protectionism reduces or mitigates supply chain risk. The question can be framed according to whether American protectionism reduces supply chain risk, increases supply chain risk, or has no effect on supply chain risk. Based on the discussion above, the United States, being a nation-state, is obliged to protect its citizens from forces inside the country and other nation-states that oppose or undermine its sovereignty. This means that a certain amount of protectionism is essential for a nation-state to exist and thrive. The issue is whether the advantages of American protectionism overshadow its disadvantages. An argument for American protectionism would contend that the advantages outweigh the

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<sup>22</sup> THOMAS HOBBS, *LEVIATHAN OR THE MATTER, FORME AND POWER OF A COMMONWEALTH ECCLESIASTICALL AND CIVIL* (True Sign Publishing House 2021 [1651]).

<sup>23</sup> JOHN LOCKE, *TWO TREATISES OF GOVERNMENT* (Cambridge University Press 1988 [1690]).

<sup>24</sup> The Editors of the Encyclopedia Britannica, *Social Contract*, ENCYCLOPEDIA BRITANNICA (Jul. 27, 2021), available at <https://www.britannica.com/topic/social-contract>.

<sup>25</sup> *Id.*

<sup>26</sup> *Id.*

<sup>27</sup> *Id.*

<sup>28</sup> *Id.*

<sup>29</sup> *Id.*

<sup>30</sup> *Id.*

<sup>31</sup> *Id.*

<sup>32</sup> Tony Scott, *Supply Chain Cybersecurity: A Report on the Current Risks and a Proposal for a Path Forward*, TONY SCOTT GROUP (n.d.), available at [https://www-file.huawei.com/-/media/corp/facts/pdf/2019/huawei-white-paper\\_tony-scott\\_final.pdf?la=en](https://www-file.huawei.com/-/media/corp/facts/pdf/2019/huawei-white-paper_tony-scott_final.pdf?la=en).

<sup>33</sup> *Id.*

<sup>34</sup> *Id.*

<sup>35</sup> *Id.*

<sup>36</sup> Josh Fruhlinger, *What is Stuxnet, Who Created It and How Does It Work?*, CSO (Aug. 22, 2017), available at <https://www.csoonline.com/article/3218104/what-is-stuxnet-who-created-it-and-how-does-it-work.html#:~:text=Who%20created%20Stuxnet%3F,and%20continued%20under%20President%20Obama>.

<sup>37</sup> Tony Scott, *supra*, note 32.

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disadvantages, whereas globalist arguments assert that the disadvantages offset the advantages. Thus, before the United States-Mexico-Canada Agreement, global economics, and national security are examined, a definition of American protectionism is in order.

### American Protectionism Definition

Protectionism is a policy of protecting domestic industries against foreign competition by employing tariffs, subsidies, import quotas, or other restrictions on the sale of goods produced in other nations.<sup>38</sup> Nation-states have implemented protectionist policies even though most economists agree that the world economy benefits from free trade.<sup>39</sup> Government-levied tariffs are the predominant protectionist measure. A tariff raises the price of imported goods, making them just as expensive or more expensive as domestic products.<sup>40</sup> Protectionism may help protect emerging industries in developed and developing nations. Protectionism is also valuable in protecting essential commodities (e.g., food, water, shelter, etc.) in less developed nations when foreign substitutes are less expensive than their domestic counterparts.<sup>41</sup> It is this last issue that is of particular importance when evaluating protectionism.

### United States-Mexico-Canada Agreement

The United States-Mexico-Canada Agreement (USMCA) came into force on July 1, 2020.<sup>42</sup> It superseded the North American Free Trade Agreement (NAFTA). The purpose of the USMCA was to benefit North American workers, farmers, ranchers, and businesses. The USMCA provided a more balanced and reciprocal trade among the United States, Mexico, and Canada. The significant points of the USMCA include:

- Creating a level playing field for American workers by improving the rules of origin for automobiles, trucks, etc.;
- Benefiting American farmers, ranchers, and agribusinesses by modernizing agricultural trade;
- Generating new protections for U.S. intellectual property and services; and
- Establishing regulations for digital trade, anti-corruption, and good regulatory practices for small and medium-sized businesses.<sup>43</sup>

In essence, the USMCA fixed the inequities in the trade specified by NAFTA. Under NAFTA, American businesses were at a distinct disadvantage compared to the advantages of Mexican and Canadian companies.

### Global Economics and Globalism

According to the Cambridge Dictionary, globalism is the “idea that events in one country cannot be separated from those in another and that economic and foreign policy should be planned in an international way.”<sup>44</sup> The extreme opposite of globalism is isolationism, which is the “political principle or practice of showing interest only in your own country and not being involved in international activities.”<sup>45</sup> Isolationism is not the same as the “America First” principle espoused by President Donald Trump. America First is a term that was initially coined by President Woodrow Wilson (a Democrat) in his 1916 presidential campaign to keep the United States out of World War I.<sup>46</sup> Under President Trump, America First meant that the security strategy of the United States would be “based on American principles, a clear-eyed assessment of U.S. interests, and a determination to tackle the challenges that [the United States] face[s]. It is a moral realism strategy guided by outcomes, not ideology.”<sup>47</sup>

The fundamental principle of global economics and globalism is that all countries’ citizens benefit from free trade.<sup>48</sup> Free trade occurs when “goods and services can be bought and sold between countries or subnational regions without tariffs, quotas or

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<sup>38</sup> Editors of the Encyclopedia Britannica, *Protectionism*, ENCYCLOPEDIA BRITANNICA (May 15, 2020), available at <https://www.britannica.com/topic/protectionism>.

<sup>39</sup> *Id.*

<sup>40</sup> PAUL KRUGMAN, & ROBIN WELLS, *ECONOMICS* (Worth Publishers 4th ed. 2015).

<sup>41</sup> *Id.*

<sup>42</sup> *United State-Mexico- Canada Agreement*, OFFICE OF THE UNITED STATES TRADE REPRESENTATIVE (n.d.), available at <https://ustr.gov/trade-agreements/free-trade-agreements/united-states-mexico-canada-agreement>.

<sup>43</sup> *Id.*

<sup>44</sup> *Globalism*, CAMBRIDGE ENGLISH DICTIONARY (n.d.), available at <https://dictionary.cambridge.org/us/dictionary/english/globalism>.

<sup>45</sup> *Isolationism*, CAMBRIDGE ENGLISH DICTIONARY (n.d.), available at <https://dictionary.cambridge.org/us/dictionary/english/isolationism>.

<sup>46</sup> Rich Rubino, *Trump Was Not First To Use The "America First" Slogan*, THE HUFFINGTON POST (Apr. 17, 2017), available at [https://www.huffpost.com/entry/the-etymology-of-america-first\\_b\\_5889767de4b0628ad613de3f](https://www.huffpost.com/entry/the-etymology-of-america-first_b_5889767de4b0628ad613de3f).

<sup>47</sup> Donald J. Trump, *National Security Strategy of the United States of America*, THE WHITE HOUSE (Dec. 2017), available at <https://trumpwhitehouse.archives.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905.pdf>.

<sup>48</sup> Paul Krugman, & Robin Wells, *supra*, note 40.



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other restrictions being applied.”<sup>49</sup> On its face, free trade seems rather idyllic. What could be wrong with everyone benefitting from trade? The fundamental assumption behind free trade is that nation-states have no tariffs, sanctions, or wars. Free trade runs into significant difficulties when there are sanctions and wars among sovereigns. This statement will be explained later in the essay.

### National Security

National security is of paramount importance to all nation-states. Without national security or poor or ineffective national security, a nation-state is violating its social contract with its people. Depending on your philosophical preferences (i.e., Hobbes, Locke, or Rousseau), when a nation-state breaches its social contract with its core group, the people have the right to protest, and in the extreme, at least according to Rousseau, the people are no longer compelled to obey the laws of the nation-state and may rebel, based on the extent and gravity of the breach.<sup>50</sup>

In 2022, and for the past 60 years, the United States has experienced a dramatic decline in products manufactured in this country.<sup>51</sup> According to Lisa, the pinnacle of U.S. manufacturing occurred in 1979 when 19.4 million Americans worked in the manufacturing sector.<sup>52</sup> By 2010, fewer than 11.5 million manufacturing jobs were in the United States, even though the country had experienced steep population gains over the 30 years.<sup>53</sup> The decline in manufacturing jobs was attributed to automation, robotics, and computer technology.<sup>54</sup> The share of manufacturing jobs in the United States of all non-agricultural reached a peak of 38 percent during World War II but declined slightly to 32 percent in 1955.<sup>55</sup> By 2019, the percentage of manufacturing jobs in the United States declined to 8 percent, whereas the pandemic skews the data after 2019.<sup>56</sup> The decline to 20 percent happened when the average trade balance as a share of GDP was zero (i.e., exports equaled imports).<sup>57</sup> The manufacturing percentage declined another 12 percentage points when the average trade balance was minus 2.6 percent per year (i.e., imports greater than exports).<sup>58</sup>

This data concludes that the United States heavily relies on its international supply chains to furnish its citizenry with the goods and services they desire to purchase. The United States is no longer the manufacturing powerhouse it was during World War II. Supply chain security in 2022 is paramount. Any supply chain disruption, whether from a cyber-attack or the inability to unload container ships laden with manufactured goods from other countries, could cause significant economic damage. If the disruption is sufficiently severe, lasts for an extended period, and involves essential goods and services, and the United States does little or nothing to resolve these issues, a case could be made that the nation-state has breached its social contract with its people. Fortunately, this breaking point has yet to be achieved. However, given the Russian-Ukrainian War, the breaking point may be fast approaching for many European countries and possibly the United States.

### Supply Chain Risks and the Solar Winds Attack

In this section, the various supply chain risks are listed, as well as the risks associated with the lifecycle journal of a product. The section then segues to the different categories of threat actors, pointing out that state-sponsored entities have extensive access to strategic information, intellectual property, human assets, and the ability of such threat actors to disrupt and destroy critical infrastructure owned by the federal government or private organizations. The section then proceeds to highlight the consequences of the SolarWinds cyber-attack.

### Supply Chain Risks in General

In general, supply chain risks come from various sources. According to Spacey, there are 14 supply risks to consider, including:<sup>59</sup>

- Shortages
- Price increases
- Discontinued items
- Supplier failure

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<sup>49</sup> *Free Trade*, ORGANISATION FOR ECONOMIC CO-OPERATIONS AND DEVELOPMENT (n.d.), available at <https://stats.oecd.org/glossary/detail.asp?ID=6265>.

<sup>50</sup> The Editors of the Encyclopedia Britannica, *supra*, note 38.

<sup>51</sup> Andrew Lisa, *History of Manufacturing in America*, STACKER (Sep. 11, 2019), available at <https://stacker.com/stories/3470/history-manufacturing-america#:~:text=The%20birth%20of%20modern%20manufacturing,called%20bulk%20material%20handling%20devices>.

<sup>52</sup> *Id.*

<sup>53</sup> *Id.*

<sup>54</sup> *Id.*

<sup>55</sup> Stephen J. Rose, *Do Not Blame Trade for the Decline in Manufacturing Jobs*, CENTER FOR STRATEGIC INTERNATIONAL STUDIES (Oct. 4, 2021), available at <https://www.csis.org/analysis/do-not-blame-trade-decline-manufacturing-jobs#:~:text=The%20share%20of%20manufacturing%20employment,are%20skewed%20by%20the%20pandemic>).

<sup>56</sup> *Id.*

<sup>57</sup> *Id.*

<sup>58</sup> *Id.*

<sup>59</sup> John Spacey, *14 Examples of a Supply Risk*, SIMPLICABLE (Apr. 22, 2018), available at <https://simplicable.com/new/supply-risk>.

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- Quality
- Delivery failure
- Supplier relationships
- Availability
- Turnaround time
- Reputations
- Supply shocks
- Shrinkage
- Exchange risk
- Procurement risk

These supply chain issues affect every organization, whether it be the federal government, a state government, or a private company. No entity is immune from these supply risks. According to Kamal and Larsson, the top ten supply chain risks are:<sup>60</sup>

- Trade wars
- Raw material shortages
- Recalls and safety scares
- Climate change
- Tougher environmental regulations
- Economic uncertainty and structural change
- Industrial unrest
- Container ship fires
- Battles at the borders
- Drones and safety aviation

The modern economy requires a smooth and efficient operation of complex supply chains that can transport materials, components, and finished products on time and within budget.<sup>61</sup> The benefits include reduced costs for manufactured goods, better access to high technology and life-saving medicines, and the opening new markets and business opportunities.<sup>62</sup> Supply chains are vulnerable to transportation delays, theft, natural disasters, inclement weather, cyber-attacks, and unexpected quality issues<sup>63</sup> This supply chain risk can short-term costs and delivery challenges. Furthermore, changes in local, national, and international trade and regulatory policies can interfere with a stable and smooth-flowing supply chain.<sup>64</sup>

According to Scott, a supply chain risk can occur at any point in the manufacturing and delivery lifecycle of a product, where the parties involved in the lifecycle include:<sup>65</sup>

### Lifecycle Journey

- Design
- Supplier selection and procurement
- Part fabrication and parts quality assurance
- Component assembly and testing
- System integration and software integration
- Packaging
- Inventory
- Distribution
- Ship to customer
- Customer installation
- Customer operation and maintenance
- Supplier-side service and support
- Equipment de-install and disposal

### Lifecycle Parties

- Original design manufacturer (ODM)
- Original component manufacturer (OCM)
- Original equipment manufacturer (OEM)
- Systems integrators (SI)
- Service providers (SP)
- Managed service providers (MSSP)
- Open software solutions (OSS)
- Transportation and logistics companies
- Facilities providers
- Service and repair
- Asset recovery and disposal companies (ITAT & ITAD)
- Customer (IT procurement, facilities, security, finance, etc.)
- Network providers (e.g., AT&T, Verizon, BT, etc.)

Two risk factors also need to be addressed. According to Scott, the opportunity time for a supply chain compromise in the lifecycle journey, the probability of occurrence, and the probability of impact must be taken into consideration.<sup>66</sup> Another overlooked

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<sup>60</sup> Shehrina Kamal, & Tobias Larsson, *The Top 10 Supply Chain Risks of 2019*, SUPPLY CHAIN QUARTERLY (May 14, 2019), available at <https://www.supplychainquarterly.com/articles/1931-the-top-10-supply-chain-risks-of-2019>.

<sup>61</sup> *Id.*

<sup>62</sup> *Id.*

<sup>63</sup> *Id.*

<sup>64</sup> *Id.*

<sup>65</sup> Tony Scott, *supra*, note 32.

<sup>66</sup> *Id.*

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risk factor is the level of difficulty. According to Scott, all malicious actors, including nation-state actors, tend to engage in low-barrier attacks.<sup>67</sup> The reason is that low-barrier attacks are easier and cheaper to execute in contrast to more complex exploits that require expensive resources. It is entirely appropriate to note that more complex attacks are easier to detect and attribute to sophisticated attackers.<sup>68</sup>

Scott also observed those threat actors associated with malicious cyber activities are generally classified into several broad categories, where each threat actor possesses different techniques, tactics, and procedures (TTP). These categories include:

Actor	Goal
<ul style="list-style-type: none"><li>• Cybercriminals</li><li>• Hacktivists</li></ul>	<ul style="list-style-type: none"><li>• Financial gain</li><li>• Reputation impact and operation disruption</li><li>• Access to strategic information and intellectual property, human asset compromise, destruction/disruption of government and critical infrastructure, and key assets/functions of society.</li></ul>
<ul style="list-style-type: none"><li>• State-sponsored entities</li></ul>	<ul style="list-style-type: none"><li>• Various reasons (e.g., revenge)</li><li>• Bolster individual or organizational reputation</li><li>• Steal trade secrets and intellectual property</li></ul>
<ul style="list-style-type: none"><li>• Insiders</li><li>• Techno vandals/hackers</li><li>• Industrial espionage</li></ul>	

### SolarWinds Cyber-Attack

SolarWinds is an American software company that began in Tulsa, Oklahoma, co-founded by David and Donald Yonce.<sup>69</sup> <sup>70</sup> The company developed the software product Orion.<sup>71</sup> The application supports governments and businesses in maintaining and managing their networks, systems, and information technology infrastructure.<sup>72</sup> The company's headquarters is in Austin, Texas, with over 3,300 employees across the United States and other countries.<sup>73</sup> <sup>74</sup> SolarWinds was first publicly traded in May 2009.<sup>75</sup> As of December 2020, SolarWinds had approximately 300,000 customers, including various federal agencies and almost all Fortune 500 companies.<sup>76</sup> About 33,000 public and private customers employed Orion.<sup>77</sup>

The SolarWinds attack began with a tiny code strip on September 12, 2019.<sup>78</sup> According to Temple-Raston, the code checked whether the computer was running a 32-bit or 64-bit processor.<sup>79</sup> The code returned a 0 or a 1, depending on what it found.<sup>80</sup> The code attempted to prove whether it could modify SolarWinds' signed-and-sealed software code.<sup>81</sup> Once the hackers realized they could engage in a supply chain attack, they understood that they could infiltrate Orion.<sup>82</sup> A supply chain attack is a hacking technique where an adversary inserts malicious code or components into a trusted software application.<sup>83</sup> The attack aimed to

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<sup>67</sup> *Id.*

<sup>68</sup> *Id.*

<sup>69</sup> Lori Hawkins, *SolarWinds Keeps on Growing*, STATESMAN NEWS NETWORK (Undated Dec. 12, 2018), available at <https://www.statesman.com/business/employment/solarwinds-keeps-growing/JkhMoapafA0qdJvD5MFILM/>.

<sup>70</sup> Liana B. Baker, Greg Roumeliotis, *SolarWinds Confirms It Is Exploring Strategic Alternatives*, REUTERS (Oct. 9, 2015), available at <https://www.reuters.com/article/us-solarwinds-m-a/exclusive-solarwinds-in-talks-with-buyout-firms-about-a-sale-sources-idUSKCN0S31OT20151009>.

<sup>71</sup> Saheed Oladimeji, *SolarWinds Hack Explained: Everything You Need to Know*, TECHTARGET (Jun. 16, 2021), available at <https://whatis.techtarget.com/feature/SolarWinds-hack-explained-Everything-you-need-to-know>.

<sup>72</sup> *Id.*

<sup>73</sup> Bloomberg Staff, *SolarWinds, Corp.*, BLOOMBERG (n.d.), available at <https://www.bloomberg.com/profile/company/0OI:GR>.

<sup>74</sup> Treva Lind, *SolarWinds blows into Post Falls*, SPOKANE JOURNAL OF BUSINESS (Sep. 22, 2011), available at <https://www.spokanejournal.com/local-news/solarwinds-blows-into-post-falls/>.

<sup>75</sup> Michael Novinson, *\$286M Of SolarWinds Stock Sold Before CEO, Hack Disclosures*, THE CHANNEL CO.: CRN (Dec. 16, 2020), available at <https://www.crn.com/news/security/-286m-of-solarwinds-stock-sold-before-ceo-hack-disclosures>.

<sup>76</sup> Catalin Cimpanu, *SEC Filings: SolarWinds Says 18,000 Customers Were Impacted by Recent Hack*, ZDNET (Dec. 14, 2020), available at <https://www.zdnet.com/article/sec-filings-solarwinds-says-18000-customers-are-impacted-by-recent-hack/>.

<sup>77</sup> *Id.*

<sup>78</sup> Dina Temple-Raston, *A 'Worst Nightmare' Cyberattack: The Untold Story of the SolarWinds Attack*, NATIONAL PUBLIC RADIO (NPR) (Apr. 16, 2021), available at <https://www.npr.org/2021/04/16/985439655/a-worst-nightmare-cyberattack-the-untold-story-of-the-solarwinds-hack>.

<sup>79</sup> *Id.*

<sup>80</sup> *Id.*

<sup>81</sup> *Id.*

<sup>82</sup> *Id.*

<sup>83</sup> Andy Greenberg, *Hacker Lexicon: What Is a Supply Chain Attack?*, WIRED (May 31, 2021), available at <https://www.wired.com/story/hacker-lexicon-what-is-a-supply-chain-attack/>.



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compromise a single supplier so that hackers could hijack its distribution system, converting any application sold, including hardware and software, into Trojan horses.<sup>84</sup> With the placement of a pregnant piece of code, a hacker can infect hundreds, if not thousands, of computers as a supplier provides its wares to its customers.<sup>85</sup>

In February 2020, the threat actors inserted malicious code into Orion, SolarWinds' production software, and in March 2020, SolarWinds began distributing signed software patch updates to Orion that contained the malicious code.<sup>86</sup> In November 2020, FireEye, a cybersecurity professional services firm, stated that it had detected a software intrusion into its systems, and on December 12, 2020, FireEye informed SolarWinds that Orion had been compromised.<sup>87</sup> On December 13, 2020, FireEye issued a technical analysis of the malicious software in the Orion updates.<sup>88</sup> On December 14, 2020, SolarWinds informed the Securities and Exchange Commission of the cyber-attack.<sup>89</sup> On December 15, 2020, Microsoft and its partners acted swiftly, redirecting and preventing malicious network traffic from reaching its intended destination address.<sup>90</sup> In the following months, several federal agencies and Congress scrutinized the breach to determine its extent and what steps the federal government could take to mitigate the breach and prevent it from occurring.<sup>91</sup>

Although Orion was attacked, there did not appear to be any supply chain disruptions. A supply chain disruption is a “breakdown in the manufacturing flow of goods and their delivery to customers.”<sup>92</sup> In other words, in a supply chain disruption, there is a reduction or even a complete stoppage in the flow of goods to customers. In the SolarWinds cyber-attack, there was no breakdown in the flow of goods to customers. What did happen was that the software became infected with malware, but the cyber-attacker did not interrupt the flow of goods to customers. It seems that the purpose of the SolarWinds cyber-attack was to gather information, not necessarily to interrupt the flow of goods. Thus, the SolarWinds attack was not a supply chain disruption, according to the definition provided herein. The SolarWinds attack was a supply chain infection, not a supply chain disruption.

### The Russian-Ukrainian War and Its Supply Chain Impact

On February 24, 2022, Russia invaded Ukraine after eight years of apparent violations by Ukraine of the Minsk Accords that were supposed to quell the violence between Ukraine and the Donbas, a territory where hundreds of thousands of ethnic Russians lived.<sup>93</sup> The European Union (EU) has instituted biting sanctions against Russia, preventing many European nations from importing natural gas, oil, coal, and other essential commodities from Russia.<sup>94</sup> Although it is now Summer, the effects of the sanctions will be even more visible when the people of the countries in Western Europe have difficulty heating their homes in Winter.<sup>95</sup> In essence, the result of these sanctions is that the supply chains from Russia to the Western European nations have been severely crippled, if not broken.

In the United States, the country is suffering from massive increases in the price of gasoline. In California, the price of gasoline is currently nearly \$7.00 a gallon, with a price of \$10.0 a gallon in the coastal California town of Mendocino.<sup>96</sup> Although

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<sup>84</sup> *Id.*

<sup>85</sup> *Id.*

<sup>86</sup> Vijay A. D'Souza, *SolarWinds Cyberattack Demands Significant Federal and Private-Sector Response (infographic)*, WATCHBLOG (Apr. 22, 2021), available at <https://www.gao.gov/blog/solarwinds-cyberattack-demands-significant-federal-and-private-sector-response-infographic>.

<sup>87</sup> *Id.*

<sup>88</sup> *Id.*

<sup>89</sup> *Id.*

<sup>90</sup> *Id.*

<sup>91</sup> *Id.*

<sup>92</sup> Risk Methods Staff, *Supply Chain Disruption – How to Manage and Avoid Breakdowns*, RISK METHODS (n.d.), available at <https://www.riskmethods.net/resilient-enterprise/supply-chain-disruption#:~:text=1.-,What%20is%20supply%20chain%20disruption%3F,and%20their%20delivery%20to%20customers>.

<sup>93</sup> Paul Kirby, *Why Has Russia Invaded Ukraine and What Does Putin Want?*, BBC NEWS (May 9, 2022), available at <https://www.bbc.com/news/world-europe-56720589>.

<sup>94</sup> EU Council Staff, *EU sanctions against Russia explained*, COUNCIL OF THE EUROPEAN UNION (n.d.), available at <https://www.consilium.europa.eu/en/policies/sanctions/restrictive-measures-against-russia-over-ukraine/sanctions-against-russia-explained/>.

<sup>95</sup> Colleen Barry, Veselin Toshkov, & Justin Spike, *Europeans Weigh Costs Of Cutting Russian Energy Over Ukraine*, ABC NEWS (May 5, 2022), available at <https://abcnews.go.com/Business/wireStory/europeans-weigh-costs-cutting-russian-energy-ukraine-84512184>.

<sup>96</sup> Nathan Solis, *\$6 for a Gallon of Gas? Try \$10 in This Coastal California Town*, THE LOS ANGELES TIMES (Jun. 6, 2022), available at <https://www.latimes.com/california/story/2022-06-06/gas-at-6-a-gallon-try-nearly-10-a-gallon-at-this-coastal-california-town-mendocino>.

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difficult to believe, President Biden has blamed President Putin of Russia for the dramatic rise in gasoline prices.<sup>97</sup> When President Trump left office on January 21, 2022, the average price of gasoline was \$2.38 per gallon.<sup>98</sup> In other words, when Joseph Biden was president, the price of a gallon of gasoline nearly tripled, straining the transportation supply chain as truckers had difficulty remaining in business due to high diesel prices.<sup>99</sup>

According to a sampling of American business leaders and economists, the situation is becoming quite dramatic. According to Durden, in a recent interview with Maria Bartiromo from Fox Business, Goya Foods CEO Bob Unanue stated that the world is on the verge of a global food crisis, where Americans will have to “tighten their belts and consume less.”<sup>100</sup> In a Wednesday interview, Unanue told Fox Business’s Maria Bartiromo, “Americans will have to tighten their belts and consume less,” in response to her question about a potential food shortage crisis. Maurya wrote that according to the World Bank, food and energy prices are expected to soar.<sup>101</sup> According to Phillips, Lloyd Blankfein, the former CEO of Goldman Sachs, stated that Americans should prepare for a recession, elevated inflation, and unprecedented gas prices.<sup>102</sup> Peter Schiff, a respected economist, has warned that the United States economy is about to shut down.<sup>103</sup> According to the former Federal Reserve Chair, Ben Bernanke, the U.S. economy is headed for stagflation with a slow economy for the next two years.<sup>104</sup> Jamie Dimon, the CEO of J P Morgan Chase, warned that the American economy is about to experience a hurricane.<sup>105</sup> According to Power the Future, two-thirds of the United States could experience electrical blackouts this Summer.<sup>106</sup>

In Europe, the situation is quickly transforming into something drastic. The Russian energy producer Novatek has been ordered by Poland to give its transmission infrastructure to Polish state-owned gas companies PGNiG, PSG, and Gaz-System, apparently without compensation.<sup>107</sup> Frans Timmermans, the Dutch vice-president of the European Union executive body, told EU citizens to take fewer showers, ride bicycles, and not wash their clothes.<sup>108</sup> Estonia, a member of the European Union, currently has an annual inflation rate of 18.8 percent, and the price of electricity has risen by 57.7 percent since April 2021.<sup>109</sup>

According to Commerzbank Chief Executive Officer Manfred Knof, Germany is about to be assaulted and battered by a wave of bankruptcies.<sup>110</sup> According to the United Nations food agency, about 25 million tonnes of grains are stuck in Ukraine and

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<sup>97</sup> Justin Sink, & Jordan Fabian, *Biden Blames Putin for Gasoline Prices, Touts Higher-Ethanol Plan*, BLOOMBERG (Apr. 12, 2022), available at <https://www.bloomberg.com/news/articles/2022-04-12/biden-tags-putin-for-gasoline-prices-touts-higher-ethanol-plan>.

<sup>98</sup> Louis Jacobson, *Fact-check: Were gas prices \$1.86 when Donald Trump left office?*, AUSTIN-AMERICAN STATESMAN (Dec. 10, 2021), available at <https://www.statesman.com/story/news/politics/politifact/2021/12/10/fact-check-gas-prices-united-states-donald-trum-joe-biden/6449849001/>

<sup>99</sup> Emily Kress, *High Gas Prices Affecting Truck Drivers*, WNEP (May 20, 2022), available at <https://www.wnep.com/article/news/local/luzerne-county/high-gas-prices-affecting-truck-drivers-pittston-township-ned-georgia-michael-kindt-luzerne-county-trucking-business/523-79fbee88-cbdd-4791-b15a-4928b18c8ac8>.

<sup>100</sup> Tyler Durden, *"We Are on The Precipice of a Global Food Crisis," Goya Foods CEO Warns*, ZERO HEDGE (Apr. 28, 2022), available at <https://www.zerohedge.com/commodities/we-are-precipice-global-food-crisis-goya-foods-ceo-warns>.

<sup>101</sup> Akash Maurya, *World on Brink of Commodities Shock – Study*, THE PRESS UNITED (Apr. 30, 2022) available at <https://thepressunited.com/updates/world-on-brink-of-commodities-shock-study/>.

<sup>102</sup> Jack Phillips, *Ex-Goldman Sachs CEO Warns Americans to Prepare for Economic Recession*, THE EPOCH TIMES (May 17, 2022), available at [https://www.theepochtimes.com/ex-goldman-sachs-ceo-warns-americans-to-prepare-for-economic-recession\\_4467984.html](https://www.theepochtimes.com/ex-goldman-sachs-ceo-warns-americans-to-prepare-for-economic-recession_4467984.html).

<sup>103</sup> Major Jordan, *Economist Who Predicted 2008 Financial Crisis Says 'U.S. Economy Is About to Shut Down*, FINBOLD (May 2022), available at <https://finbold.com/economist-who-predicted-2008-financial-crisis-says-u-s-economy-is-about-to-shut-down/>.

<sup>104</sup> Theodore Bunker, *Bernanke Warns US Could Experience 'Stagflation'*, NEWSMAX (May 16, 2022), available at <https://www.newsmax.com/newsfront/benbernanke-economy-inflation-federal-reserve/2022/05/16/id/1070043/>.

<sup>105</sup> John Carney, *Jamie Dimon Warns of Economic 'Hurricane'*, BREITBART NEWS (Jun 1, 2022), available at <https://www.breitbart.com/economy/2022/06/01/jamie-dimon-warns-of-economic-hurricane/>.

<sup>106</sup> Power the Future Staff, *Two-Thirds of the Country Face the Prospect of Blackouts this Summer*, POWER THE FUTURE (Jun. 1, 2022), available at <https://powerthefuture.com/two-thirds-of-the-country-face-the-prospect-of-blackouts-this-summer/>.

<sup>107</sup> RT Staff, *Poland seizes Russian Gas Assets*, RT BUSINESS (Apr. 28, 2022), available at <https://www.rt.com/business/554722-poland-seizes-russian-gas-assets/>.

<sup>108</sup> Paul Joseph Watson, *European Commission VP Tells People to 'Support Ukraine' by Taking Fewer Showers & Not Washing Their Clothes*, INFOWARS (Apr. 29, 2022), available at <https://www.newswars.com/european-commission-vp-tells-people-to-support-ukraine-by-taking-fewer-showers-not-washing-their-clothes/>.

<sup>109</sup> Bol News Staff, *Baltic Nation Experiences Wild Surge in Consumer Prices*, BOL NEWS (May 8, 2022), available at <https://www.bolnews.com/international/2022/05/baltic-nation-experiences-wild-surge-in-consumer-prices/>.

<sup>110</sup> News Desk, *Europe's Biggest Economy Faces Wave of Bankruptcies, Says Banking Chief*, FREE PRESS KASHMIR (May 8, 2022), available at <https://freepresskashmir.news/2022/05/08/europes-biggest-economy-faces-wave-of-bankruptcies-says-banking-chief/>.

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cannot leave the country due to infrastructure challenges and blocked Black Sea ports.<sup>111</sup> Duggal and Haddad observed that over 25 percent of the world's wheat comes from Russia and Ukraine<sup>112</sup> without violating American and European sanctions.

Because of ten days of not being paid, Russia has stopped shipping electricity to Finland.<sup>113</sup> In an apparent sympathetic response to Russia, Algeria has reduced gas supplies by 25 percent to Spain.<sup>114 115</sup> The Federal Network Agency of Germany, known as the Bundesnetzagentur (BNetzA), is drafting a plan to implement gas rationing because Germany has refused to for Russian natural gas in rubles rather than American dollars or euros.<sup>116</sup> On May 11, 2022, the National Security and Defense Council of Ukraine will forcibly withdraw 99.8% of the shares of Prominvestbank (PIB) (about \$30 million), owned by Russian state corporation VEB.RF, and 100% of the shares of the International Reserve Bank (MR Bank) (approximately \$491 million, owned by Sberbank of Russia.<sup>117</sup> On a humorous note, the Polish government is now permitting its citizens to forage for firewood to heat their homes due to banning Russian coal.<sup>118</sup> This is what the serfs did in the Middle Ages to stay warm when it was cold. Polish Prime Minister Mateusz Morawiecki's government blamed the conflict in Ukraine for high energy costs. However, critics have noted that the inflation rate in Poland has reached 14 percent, where fuel prices are about eight zlotys (\$1.87) per liter.<sup>119</sup>

Finally, according to President Volodymyr Zelensky, Ukraine will no longer be exporting gas and coal to other nations.<sup>120</sup> According to the German Economy Minister, Robert Habeck, who Der Spiegel interviewed, Germany may have to close down entire industrial sectors if there is a natural gas shortage. Habeck suggested that all factory work will be suspended, not just for days or weeks, but for a long time. Habeck said that regions could lose entire industrial complexes.<sup>121</sup> Germany has decided to restart its coal plants to combat the imminent energy crisis.<sup>122</sup> One can only imagine what the climate change community thinks of this decision.

### CONCLUSION

Many supply chain risks come from various sources, from shortages to procurement risks, from trade wars to drones and safety aviation. A supply chain risk can occur at any point in a product's manufacturing and delivery life cycle, where threat actors can range from state-sponsored entities to hackers and techno vandals. Nation-state actors may be particularly troublesome because of their financial resources and the number of people they command. Nation-state actors also pose unique risks because they have the resources to be patient and are not motivated by profit. Nation-state actors are in some sense unique and should be addressed in unique ways befitting their station in the threat actor category.

Even so, a nation-state is not a sacrificial lamb to be slaughtered on the globalist altar. A nation-state has an obligation under the implicit terms of its social contract with its people to protect their welfare. According to Rousseau, the citizenry is obligated to rebel when a nation-state continues to violate the terms of the social contract.<sup>123</sup> The fact is that things have yet to reach a

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<sup>111</sup> Emma Farge, *Nearly 25 Million Tonnes of Grain Stuck in Ukraine, Says UN Food Agency*, REUTERS (May 6, 2022), available at <https://www.reuters.com/world/europe/nearly-25-mln-tonnes-grain-stuck-ukraine-un-food-agency-2022-05-06/>.

<sup>112</sup> Hanna Duggal and Mohammed Haddad, *Infographic: Russia, Ukraine and the Global Wheat Supply*, AL JAZEERA (Feb. 17, 2022), available at <https://www.aljazeera.com/news/2022/2/17/infographic-russia-ukraine-and-the-global-wheat-supply-interactive>.

<sup>113</sup> RT Staff, *Russia Halts Electricity Supply to Finland*, RT BUSINESS (May 14, 2022), available at <https://www.rt.com/business/555469-russia-halt-electricity-sales-finland/>.

<sup>114</sup> North Africa Post Staff, *Algeria Already Failing to Honor Gas Supply Deals with Spain*, NORTH AFRICA POST (May 6, 2022), available at <https://northafricapost.com/57439-algeria-already-failing-to-honor-gas-supply-deals-with-spain.html>.

<sup>115</sup> Tass Staff, *Algeria Plan to Sign Document Confirming New Quality of Relations — Lavrov*, TASS (May 10, 2022), available at <https://tass.com/russia/1448953>.

<sup>116</sup> Kurt Zindulka, *Germany Prepares for Gas Rationing as Russia Cuts Off Supplies to Finland*, BREITBART NEWS (May 22, 2022), available at <https://www.breitbart.com/europe/2022/05/22/germany-prepares-for-gas-rationing-as-finland-claims-russia-cut-off-supplies/>.

<sup>117</sup> RT Staff, *Ukraine to Seize Russian Banks*, RT BUSINESS (May 12, 2022), available at <https://www.rt.com/business/555346-ukraine-sberbank-veb-assets/>.

<sup>118</sup> RT Staff, *Poles May Forage for Wood to Heat Homes – Minister*, RT BUSINESS (Jun. 6, 2022), available at <https://www.rt.com/business/556674-poland-firewood-heat-homes/>.

<sup>119</sup> *Id.*

<sup>120</sup> RT Staff, *Ukraine to Halt Coal and Gas Exports*, RT BUSINESS (Jun. 8, 2022), available at <https://www.rt.com/business/556801-ukraine-halts-coal-gas-exports/>.

<sup>121</sup> RT Staff, *Germany Warns Entire Industries Could Stop Due to Gas Shortage*, RT BUSINESS (Jun. 24, 2022), available at <https://www.rt.com/business/557729-gas-shortage-industry-halt-germany/>.

<sup>122</sup> Peter Caddle, *Energy Crisis: Government to Restart Coal Plant After Power Company Tsars' Warning*, BREITBART NEWS (Jun. 28, 2022), available at <https://www.breitbart.com/europe/2022/06/28/energy-crisis-government-to-restart-coal-plant-after-power-company-tsars-warning/>.

<sup>123</sup> The Editors of the Encyclopedia Britannica, *supra*, note 38 .

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crescendo, where riots, rebellion, and insurrection are omnipresent. However, as winter approaches and people suffer from the biting cold in Europe and possibly in the United States, the balance between free trade and protectionism may tip towards the latter. In the face of severe adversity, nations and their citizenry will likely opt for survival over globalist free-trade altruism.

Whether one, either an individual or a nation-state, is for or against protectionism is a matter of degree. Free-trade globalism has distinct advantages as long as tariffs, sanctions, and war are missing from the economic and political landscape. As soon as tariffs, sanctions, and the threat of war, kinetic and not necessarily cyberwar, exist, the balance seems to be shifting towards protectionism. One should remember that a certain degree of protectionism is needed for a nation-state to satisfy the conditions of its social contract. If a nation-state sacrifices its duty to adhere to its social contract, the warning of Rousseau rears its head, where rebellion and insurrection are the inevitable results. Hopefully, the scale will not tip too far in either direction.

The contrast between the SolarWinds cyber-attack and the supply chain effects of the Russian-Ukrainian War could not be starker when dealing with supply chains. SolarWinds was an attack on software, an intangible product with apparently no real-life consequences. In contrast, the Russian-Ukrainian War is kinetic. Millions of people will feel the consequences, particularly in the upcoming winter, if there is insufficient natural gas to heat people's homes and power the industry's businesses. In the United States, we have yet to experience the full force of the supply disruption that is about to occur. The Europeans are feeling it already. The American sanctions will likely have an extraordinary effect on the lives of Western Europeans.

One final note should be stated. It is not the world against Russia. The United States, the European Union, and NATO against Russia. Argentina and Iran have petitioned to join BRICS (Brazil, Russia, India, China, and South Africa).<sup>124</sup> Saudi Arabia, Egypt, and Turkey have also expressed an interest in joining BRICS.<sup>125</sup> Do not be surprised if Indonesia demonstrates its desire to join BRICS.<sup>127</sup> It seems that what is shaping up is an economic war between the United States, Canada, and the European Union versus the rest of the world. The supply chain disruptions seem to be a symptom of a much larger event. The Jerusalem Post opined,

*"It seems, finally, that this cycle of plague, war and famine will be the last of Western hegemony and the birth of a new world order, a new world order which will probably bring back the balance of power to Asia and Africa, which were the centers of global wealth and power long before the industrial revolution."*<sup>128</sup>

It may very likely turn out that the unipolar world of American exceptionalism and Western dominance is seemingly ending, where a multi-polar economic and financial world may more than likely emerge.

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